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Remarks

This Amendment is responsive to the November 6, 2006 Office Action. Reexamination and reconsideration of **claims 1-24** is respectfully requested.

Drawings

The drawings were objected to under 37 CFR 1.83(a) "because they fail to text label":

"Figure 2, 200" as "system" (page 6, line 3),

"Figure 3, 300" as "system" (Page 8, line 6),

"Figure 7, 700" as "image forming device" (Page 15, Line 3), and

"Figure 8, 800" as "application programming interface (API)" (Page 16, Line 1) as described in the specification.

These objections appear to rely on an improper interpretation of both MPEP608.02(d) and 37 CFR 1.121(d). Notwithstanding the interpretation, the drawing sheets have been amended as requested.

Objections to Informalities in the Claims

The Examiner's careful review of the claims is greatly appreciated. All of the informalities identified by the Examiner have been corrected or traversed. Applicant does not believe the scope of the claims has been changed since no new matter has been added.

Objections to Informalities in the Specification

The Examiner's careful review of the specification is also greatly appreciated. All of the informalities identified by the Examiner has been corrected or traversed. Applicant does not believe the scope of the specification has been changed since no new matter has been added.

Objection To Abstract

The abstract was objected to because the term "GPIO" appears. GPIO is a well known term of art in computer science, meaning "general purpose input output". The abstract has been amended as requested to spell out this acronym. Since the term is such a

well known term of art in computer science and computer engineering, this amendment does not introduce new matter into the application.

Objection to Trademarked Terms

The Office Action objects to the presence of trademarked terms in the specification and suggests capitalizing the trademarked terms and providing generic terminology. The items referred to by the trademarked terms are provided as examples of more generically identified items. For example, "Intel Pentium 4" is provided as an example of a microprocessor. Note that the registered trademarks are Intel® and Pentium®, neither of which are capitalized. Similarly, paragraph 41 reads "In one example, the operating system may be Microsoft Windows XP". Note that the registered trademarks are Microsoft® and Windows®. Once again the terms are not capitalized. However, marking symbols have been added as suggested and thus paragraphs [0002] and [0041] have been amended to add the marks.

Objections to the Disclosure

The disclosure is objected to on numerous grounds. Some of the grounds could alter the nature and/or scope of the claimed invention and thus are traversed. Some grounds of objection could create 35 U.S.C. 112 problems concerning indefiniteness. For example, in claim 1, the Examiner suggests changing a definite claim term ("block") to an indefinite claim term ("block(s)"). The term "block(s)" could be interpreted "block or blocks", which could possibly be considered indefinite. Thus, some of the objections to the disclosure are traversed below.

The Examiner requests the following replacements, some of which are traversed on an individual basis:

Page 1, line 31, replace "illustrate various example" with "illustrate example";

Page 1, line 31, remove "so on that illustrate various example";

Page 2, line 1, remove "of aspects".

The complete sentence in which these three phrases appear provides language to prevent limitations from being added to the invention. This standard language is consistently

used by many practitioners and no other examiner has objected to it. The complete sentence reads: "The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate various example systems, methods, and so on that illustrate various example embodiments of aspects of the invention." This language is intended to prevent an examiner or litigant from adding limitations to an invention. The term "and so on" is used to shorten the sentence since embodiments including systems, methods, computers, printers, computer-readable mediums, and application programming interfaces are described. The term "various example" is used to indicate that the application provides representative examples from the several claimed and described embodiments. The phrase "of aspects" indicates that the examples focus on the novelty of the embodiments, leaving standard aspects (e.g., resistors) to the understanding of one skilled in the art. Applicant requests that some rationale, supported by a citation to the MPEP, be provided for suggesting these replacements and/or rejections. A citation to the MPEP that describes how this language produces an informality is requested.

Page 6, line 9, GPIO has been replaced with GPIO (General Purpose Input Output).

Paragraph 25 has been amended accordingly. Since the term GPIO is so well known as a term of art in computer science and computer engineering, no new matter has been added by spelling out GPIO.

Page 7, line 27, replace "0xff" with "0xff (hexadecimal)".

Page 7, line 29, replace "0x00" with "0x00 (hexadecimal)".

Paragraph 28 has been amended as requested. The terminology 0Xnn is so well known in computer science that providing the additional term (hexadecimal) does not add new matter to the application.

Page 7, line 27, replace "used to control establishing" with "used to establish".

Page 7, line 29, replace "used to control establishing" with "used to establish".

Applicant points out that providing an eight bit control signal that indicates what a desired state should be is different from establishing the desired state. In one case an indirect

action is taken (providing the code) while in the other case a direct action is taken (establishing the state). These are different things. Controlling a device to establish a state is not the same thing as establishing the state. One is an indirect action and the other is a direct action. Thus, this objection is traversed and Applicant respectfully submits that the objection be removed since it may alter the claimed invention.

Page 14, line 5, replace "the memory 604 can store processes" with "the memory 604 can store instructions." While it is true that a memory can store instructions, a memory can also store processes. The Applicant intends for the sentence to describe how the memory can store a process. Thus, this objection is traversed and Applicant respectfully requests that the embodiments be examined as claimed and described, not in an altered form proposed by the Office Action.

Page 16, line 25, replace "systems, methods, and so on have" with "systems and methods." The phrase "and so on" in this sentence is used to shorten the sentence but to still include the systems, methods, and the other embodiments (e.g., computer-readable media, logics, application programming interfaces,...) described in the application. Once again this is language that appears in practically every patent application and is designed to prevent examiners and/or litigants from creating limitations where none were intended. Thus, this objection is respectfully traversed. Applicant invites a citation to a portion of the MPEP that would indicate that this language creates an informality.

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Claim Objections

Claims 1, 9, 10, 11, and 12 were objected to for purportedly having informalities. While the items were identified as informalities by the Office Action, no rationale was provided for why these items allegedly produce an informality. Applicant respectfully requests a rationale for each of the objections, including a citation to the MPEP section that justifies the objections.

Claim 1

Line 3, replace "may be" with "are".

This proposed amendment would change the claim by requiring that the entire set of bit patterns stored in the memory be written to the GPIO block and the thermal management register. The specification and the claim both indicate that writing bit patterns to one or more of these destinations is selective. Consider [0025] which describes how a bit pattern may be retrieved and written to GPIO block 220. It may be retrieved when the system desires to change the operating frequency. It will only be written when a change is desired. Additionally, [0025] identifies that writing the bit pattern can cause the processor 230 to have its operating frequency and operating voltage changed.

Can does not mean will.

May does not mean are.

These words are chosen to indicate that the writing is selective and that the changing is conditional. The suggested replacement could change the nature of the invention. Thus, the objection is traversed because it changes a selective system to a non-selective system. A citation to the MPEP section that grants authority to require a change from a selective system to a non-selective system, and a citation to the MPEP section that identifies a selective system as being "informal" is requested.

In the alternative, Applicant would consider changing "may be" to "are selectively" if the Examiner would agree that this removes the purported informality.

Line 4, replace "GPIO block and" with "GPIO block(s) and"

This proposed amendment would likely render the claim indefinite because the common English usage of "noun(s)" is interpreted "noun or nouns". Applicant does not intend for there to be an implied "or" in this claim. A citation to the MPEP section that grants authority to replace a definite term with an indefinite term in a claim, and a citation to the MPEP section that identifies a definite term as being "informal" is requested. Additionally, changing "block" to "block(s)" changes the claim to where it could be considered to require multiple GPIO blocks. This is neither the Applicant's intent nor the claimed invention. Consider, for example, [0024] and figure 2, which illustrate and describe a single GPIO block 220. The proposed replacement would require the underlying architecture to have multiple GPO blocks. This is not Applicant's intent and thus the objection is traversed. This traversal is particularly poignant for embedded systems that may only include a single GPIO block.

Line 4, replace "GPIO block is" with "GPIO block(s) or the thermal management register are".

The proposed replacement could introduce an indefiniteness to a definite claim and change the function of the invention as claimed and described. The claim is describing how the GPIO block can control a thermal management signal. The proposed change would have both the GPIO block and the thermal management register control the thermal management signal. Applicant requests that the claim be examined having the GPIO block control the thermal management signal as claimed, and thus the objection is traversed.

Line 5, replace "that can be" with "that is".

This replacement would require the thermal management signal to be provided. As claimed and described, the signal is selectively provided upon receiving a request to establish a desired processor performance state. If no such request were received, no signal would be provided. However, with the proposed replacement, a signal would always be provided. This is not Applicant's intent. Applicant requests that the claim be examined as written as a

selective system. In the alternative, Applicant would amend "that is" to "that is selectively" if the Examiner would agree that this would remove the purported informality.

Line 7, replace "to select a" with "the logic selecting a".

This replacement would require changing an infinitive to a gerund. This grammatical change could have dire consequences in claim construction and would make enforcing the claim against an importer practically impossible. The change to a gerund would require the system to be in operation to be infringed. However, patent protection extends to providing an exclusive right to exclude others from making, using, selling, and importing a patented item. The proposed change does away with protection for making, selling, and importing and thus the objection is traversed.

Line 7, remove "to be written to the GPIO block or the thermal management register".

The claim has been amended as suggested.

Line 9, replace "GPIO block or" with "GPIO block(s) or".

This replacement would require the underlying architecture to have multiple GPIO blocks, which is not Applicant's intent. Thus the objection is traversed.

Claims 9 and 10

The objections to these claims (h - u) are identical to those made for claim 1. These claims have been amended to depend from claim 1 and thus the traversals and amendments described above with respect to claim 1 now apply equally to claims 9 and 10.

Claim 11

Line 3 has been amended as suggested.

Line 6 has been amended to achieve the desired effect without introducing the indefiniteness that the proposed replacement would introduce.

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Claim 12

Objections x-dd are identical to objections a-g associated with claim 1. Thus, the same traversals and amendments apply equally here.

Claim 14

Line 3, remove "the state of".

This element describes how the method includes accessing a data store to acquire information that facilitates controlling the state of a signal and a register. The data itself, as it resides in the data structure from which it is read, does not and can not possibly control the signal or the register. Instead, the next element in the method involves writing a bit pattern to a GPIO block. The GPIO block as written performs the direct control. Thus this objection is traversed because it attempts to make an indirect action (e.g., controlling a state) into a direct action (e.g., controlling an apparatus).

Line 6, replace "a" with "the".

This would produce an antecedent basis problem. Line 6 reads "signal produced in response to writing a bit pattern to a GPIO block." This passage includes the first occurrence of "bit pattern" and the first occurrence of "GPIO block" in the claim. The Office Action does not identify which "a" is to be changed. However, changing either would produce an antecedent basis problem and thus this object is traversed.

Claim 18

Line 2, replace "can be" with "are".

This would make the system non-selective. The system is selective. Thus this objection is traversed.

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Summary of The Office Action

Claims 1-13 and 23 were rejected under 35 U.S.C. §101 "as a result of the applications [sic] disclosure pertaining to the provided definition of "Logic" (page 3, Line 29)." It appears that the Office Action is asserting that neither software nor firmware are patentable subject matter. This rejection is traversed below as both software and firmware are clearly patentable subject matter as decided by Courts that control the Patent Office.

Claims 22 and 24 were rejected "as a result of the applications [sic] disclosure pertaining to the provided definition of a 'computer-readable medium'" (Page 3, Line 9). The Office Action appears to be asserting that a computer readable medium, in particular a carrier wave, is not patentable subject matter. This rejection is traversed below as carrier waves are clearly patentable subject matter as decided by Courts that control the Patent Office.

Claims 1-24 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement for purportedly not describing how a simulation is achieved. Citations to paragraphs that spell out exactly how an example simulation is achieved are provided.

Claim 11 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. An amendment addresses this issue.

Claims 1-24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatia et al. (US Pat. No. 6,535,798 B1)(Bhatia). Bhatia is illustrated to be a conventional ACPI application that adds cyclic throttling. Bhatia does not disclose storing the GPIO block address or set of bit patterns to write to the GPIO block whose address is missing.

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35 U.S.C. §101

Claims 1-13, and 23

Claims 1-13 and 23 were rejected under 35 U.S.C. §101 as purportedly being directed to non-statutory subject matter. The Office Action recites that "logic" is non-statutory subject matter because "firmware and/or software code lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 U.S.C. 101".

The Office Action asserts that firmware and software are "at best, functional descriptive material *per se*." This is incorrect. Reference to the MPEP will correct the Office Action's mistake.

MPEP 2106.01 describes how "descriptive material" can be either "functional descriptive material" or "nonfunctional descriptive material." The MPEP states that "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. The MPEP then describes that "both types of "descriptive material" are **nonstatutory when claimed as descriptive material *per se***." Thus, even "descriptive material" may be statutory when it is not claimed as descriptive material *per se*. However, the claimed logic is simply not descriptive material and is not claimed as such.

The Office Action errs in its analysis because it assumes the logics are claimed as descriptive material *per se*. The Office Action overlooks the fact that the logics claimed in 1-13 and 23 are **not claimed as descriptive material *per se***. Indeed, the logics in 1-13 are claimed as functional elements, rather than as collections of instructions merely embodied in a tangible medium. For example, the logic in claim 1 is "operably connected to the memory" and is used "to establish a desired processor performance state in the processor." Clearly this is not claiming the logic as just an instruction repository. The logic is not claimed as descriptive material per se (e.g., claiming a program as a program), but rather is claimed as a working element of a machine that achieves a concrete, tangible, real-world result in a processor.

Thus, **these rejections are fundamentally flawed because they rely solely on the text describing a logic and not on the logic as claimed.** Applicant respectfully requests removal of the rejection and an early allowance of these claims.

Claims 22 and 24

Claims 22 and 24 were rejected under 35 U.S.C. §101 as purportedly being directed to non-statutory subject matter. The Office Action recites that "signals, ... carrier waves" are non-statutory subject matter because they do not "constitute a machine or a manufacture within the meaning of 35 U.S.C. 101". While this type of 35 U.S.C. §101 rejection may have been valid before In re Beauregard, 53 F. 2d 1583, 35 USPQ 2d 1382 (Fed. Cir. 1995), and before in re Lowry, 32 F. 3d 1579, 32 USPQ 2d 1031 (Fed. Cir. 1994) it is clearly out of place and improper now.

Once again the MPEP provides guidance for how to examine computer-readable medium claims. A distinction exists between proper 35 U.S.C. §101 rejections for claims to forms of energy and for claims to signals functioning as a computer-readable medium. Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, *per se*, and as such are non-statutory natural phenomena. *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14 (1853). **However, a signal claim directed to a practical application of electromagnetic energy is statutory regardless of its transitory nature**. See *O'Reilly*, 56 U.S. at 114-19; *In re Breslow*, 616 F.2d 516, 519-21, 205 USPQ 221, 225-26 (CCPA 1980). (emphases added). In this application, there is clearly a practical application, reprogramming a receiving computer. This distinction has been discussed with approval with respect to this claim in US patent 5,568,202 (Koo).

> An electronic reference signal in a system for minimizing the effects of ghosts occurring during the transmission and reception of a television signal over a communications path, **wherein said reference signal is embodied in a processor readable memory**, is non-cyclic, has a substantially flat frequency response within the bandwidth of said communications path and has a plurality of substantially uniform amplitude peaks over a time interval, and wherein a replica of said reference signal is transmitted as part of said television signal and is utilized by a decoder to derive coefficients which are used with at least one filter to remove said ghosts.

Thus, since at least 1996, this type of claim has been regarded favorably by the PTO and has been deemed to be statutory subject matter. The PTO is simply following the law as established by the Federal Circuit in Beauregard and Lowry. Beauregard and Lowry established that data structures and computer programs stored on floppy disks were statutory subject matter. The rationale behind the decisions was that a provider of infringing software should be liable as a direct infringer rather than as a contributory infringer. If the data structure or computer program on the floppy disk was not statutory, then only the user of the software would be a direct infringer. The user could end up as an unwitting infringer while the knowingly infringing provider goes free. Thus, patent owners would be forced to sue unwitting infringers for direct infringement to be able to get to the contributory infringer. If the disk were not an infringing article of manufacture and the disk was provided from outside the United States then the provider might not have even been liable for contributory infringement since they would not have made, used, sold, or imported an infringing article. This is inequitable and thus the Federal Circuit acted, holding that programs and data structures embodied in computer-readable mediums statutory subject matter. The patent office does not have the authority to overrule the Federal Circuit.

Since Beauregard and Lowry, propagated signals have largely replaced floppy disks for software distribution. The signal claim is directed to a manufactured transient phenomenon, like an electrical, optical, or acoustic signal that is more than just a perturbation. The manufactured transient phenomenon allows the transmission of computer executable instructions in the same way that the floppy disk of Beauregard and Lowry allow the transmission of computer executable instructions. Therefore, the claims are statutory subject matter, as determined by case law and PTO guidelines, and the 35 U.S.C. §101 rejection should be removed.

The MPEP describes that "when functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized." Citing *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)(discussing patentable weight of data structure

limitations in the context of a statutory claim to a data structure stored on a computer readable medium that increases computer efficiency).

Here, the claimed computer-readable medium is encoded with a computer program and thus is a computer element that defines structural and functional interrelationships between the computer program and a receiving computer that permit the computer program's functionality to be realized, and is thus statutory. The transitory nature of the carrier wave is irrelevant because a signal claim directed to a practical application of electromagnetic energy is statutory regardless of its transitory nature. See *O'Reilly*, 56 U.S. at 114-19; *In re Breslow*, 616 F.2d 516, 519-21, 205 USPQ 221, 225-26 (CCPA 1980).

The claimed signal performs a useful, concrete, and tangible result. The claimed signals carry computer executable instructions from one point (e.g., local computer) to another point (e.g., remote computer) in a repeatable, detectable, and useful manner. When received, the claimed signals transform the receiving machine into a newly programmed machine. Thus, all prongs of the "practical utility" test are met, making the claimed signals statutory subject matter. From a technological standpoint, a signal encoded with functional descriptive material is similar to a computer-readable memory encoded with functional descriptive material, in that they both create a functional interrelationship with a computer. In other words, a computer is able to execute the encoded functions, regardless of whether the format is a disk or a signal. (emphasis added).

The Office Action wrestles with which form of matter the claimed computer-readable medium falls under. The Office Action even considers whether a computer readable medium is a chemical compound. This is a misguided exercise. Congress chose the expansive language of 35 U.S.C. §101 to include "anything under the sun that is made by man." Diamond v. Chakrabarty, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). ... [Thus], the question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to ... but rather on the essential characteristics of the subject matter, in particular, its practical utility.

In this application, the practical utility, (e.g., transmitting computer executable instructions from place to place) is undisputed. What is disputed, is the propriety of the §101

rejections. Thus, Applicant respectfully requests that the §101 rejections be withdrawn so that meaningful prosecution on the merits can proceed.

35 U.S.C. §112

Claims 1-24 were rejected under 35 U.S.C. 112, first paragraph, as purportedly failing to comply with the enablement requirement. The Office Action asserts that since the description refers to simulating an action or producing a simulation, that the claims are not enabling. The Office Action asserts that the specification provides no details pertaining to a model of the system, means for measuring the system, performing calculations, and generating a simulation. This assertion is both irrelevant and incorrect. It is irrelevant because the claims are directed to systems that take specific actions, methods that take specific actions, a computer, a printer, a computer-readable medium, and an application programming interface. The assertion is incorrect because the application does include such details, beginning in the very first paragraph and continuing throughout.

Paragraph [0001] describes how conventional processor performance states (e.g., frequency, voltage) may be manipulated by conventional ACPI systems. Paragraph [0002] describes how an internal machine specific register can be written by the ACPI system to manipulate frequency and voltage. This is the operation that will be simulated. In one of many examples, the specification then describes in [0024] how the a thermal management register (e.g., TM2) and/or a thermal management signal (e.g., PROCHOT) can be used to simulate the actions of paragraph [0001]-[0002], that describe a processor performance state that would conventionally be produced by writing the machine specific register to alter the internal operating frequency and/or voltage through the ACPI system. Thus, in one example, the "simulation" involves using different hardware (e.g., TM2) and a different signal (e.g., PROCHOT) to give or create the effect or appearance of using the machine status register that is written by the ACPI system.

Thus, the Office Action is incorrect when it asserts that the "specification is silent on how one skilled in the art would conduct or produce a simulation." Specific hardware and signals are described and thus these rejections should be withdrawn.

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Claim 11 was rejected under 35 U.S.C. 112, second paragraph, as purportedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action asserts that there is insufficient antecedent basis for the limitation "based on the thermal management signal." Claim 11 has been amended to address this rejection.

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The Claims Patentably Distinguish Over the References of Record

35 U.S.C. §103

To establish a prima facie case of 35 U.S.C. §103 obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP 2143.01 Second, there must be a reasonable expectation of success. MPEP 2143.02 Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.03 Additionally, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). This requirement is intended to prevent unacceptable "hindsight reconstruction" where Applicant's invention is recreated from references using the Application as a blueprint.

Here, the Office Action asserts that "it would have been obvious to a person of ordinary skill in the art to acknowledge that the system claimed in Bhatia et al. leads also to the development of a model or simulation of" the claimed system. This appears to be a 102 rejection that asserts that Bhatia teaches the claimed invention. However, the Office Action provides only a 103 obviousness rejection that satisfies none of the criteria established by MPEP 2143. No modification to Bhatia is suggested by the Office Action, so this cannot be a 103 rejection under 2143.01. Since there is no modification asserted, there can be no reasonable expectation of success so this cannot be a 103 rejection under 2143.02. Finally, the Office Action does not assert that Bhatia teaches all the limitations of the claims, and thus this cannot be a 103 rejection under 2143.03. Having exhausted all the possibilities for a proper 103 rejection, the rejection must be seen as improper and should be removed.

Notwithstanding the impropriety of the rejection, Bhatia does not teach all the claimed elements. Bhatia does not teach storing a set of bit patterns and an address of a GPIO block. Bhatia also does not describe writing one of the stored bit patterns to the GPIO block. Thus, none of the claims are obvious for at least this reason.

Bhatia describes a throttling system that in one example can cycle between an ACPI HP state and an ACPI LP state to provide an intermediate state that "is superior to the performance provided by throttling the components from the HP state." Col. 2, lines 60-61. In another example, Bhatia describes how the ACPI LP state can be throttled to provide an even lower power state. Bhatia does not describe storing a set of bit patterns and an address of a GPIO block. Bhatia also does not describe writing a bit pattern to the GPIO block or the thermal management register. Instead, Bhatia describes manipulating the G_STPCLK# signal. Col. 4, lines 8-15. Bhatia's shortcomings with respect to individual claims are addressed below.

Independent Claim 1

This claim recites a data structure that stores an address of a GPIO block and a set of bit patterns that may be written to the GPIO block or to a thermal management register. The reference discloses storing neither the address of the GPIO block nor the set of bit patterns.

The Office Action asserts that Bhatia discloses the data structure being configured to store an address of a GPIO block because Bhatia recites that "the interrupt event may be stored as a memory or **I/O-mapped register**". Col. 4, line 5. This citation is incomplete. The citation actually reads "the interrupt event may be stored as a memory or **I/O-mapped register bit**". The Office Action cannot leave words out of a citation, especially words that render the citation useless for its intended purpose. First of all, the thing being stored is not the address of a GPIO block or a set of bit patterns that can be written to the GPIO block. Next, Bhatia is really describing the "interrupt event" being stored. An interrupt event is neither an address block nor a set of bit patterns. Finally, Bhatia describes the interrupt event being stored in a register bit. A register bit is not a data structure that can store a GPIO block address and a set of bit patterns. Thus, this rejection is completely without basis and should be withdrawn on this ground alone.

Claim 1 also recites "a logic ... to select a bit pattern ... selected from the set of bit patterns." The Office Action asserts that Bhatia discloses selecting a bit pattern at Col. 9, line 19, because a clock duty cycle setting may be written to a control register and the number of register bits dedicated to store the clock duty cycle determines the number of

different duty cycle settings that may be made the hardware control logic. While this passage certainly describes writing bits to a control register, it does not describe selecting a bit pattern and writing the bit pattern to the GPIO block. Instead, this passage simply describes writing a clock duty cycle to a control register, which is a conventional ACPI approach. Thus, for this additional reason, this claim is not obvious and is condition for allowance.

Since this claim recites features not taught or suggested by the reference, it patentably distinguishes over the reference. Accordingly, dependent claims 2-8 also patentably distinguish over the reference and are in condition for allowance.

Claim 4

This claim depends from claim 1, which has been shown to be not obvious. Thus, this claim is similarly not obvious. Additionally, this claim recites that the data structure comprises an ACPI table. Thus, claim 4 describes an addition to an ACPI table. The Office Action asserts this element is taught in col. 7, line 57, which describes how "a thermal management routine" may be invoked "in response to an ACPI event." Invoking a routine in response to an ACPI event does not disclose adding the GPIO block address or a set of bit patterns to an ACPI table. A pinpoint citation describing storing the address of the GPIO block in an ACPI table is invited. Since none can be found in this reference or any other of the cited references, for this additional reason this claim is not obvious.

Claim 7

This claim depends from claim 1, which has been shown to be not obvious. Thus, this claim is similarly not obvious. Additionally, this claim recites that the thermal management register is the TM2 register. The Office Action asserts this element is taught in col. 9, line 12, which describes how a clock duty cycle may be written by a thermal management unit to a control register that may be located in the processor or other suitable storage location. Neither of these locations appear to disclose the TM2 register. A pinpoint citation describing writing the selected bit pattern to the TM2 register is invited. Since none can be found in this reference or any other of the cited references, then for this additional reason this claim is not obvious.

Claim 8

This claim depends from claim 1, which has been shown to be not obvious. Thus, this claim is similarly not obvious. Additionally, this claim recites that the thermal management signal is placed on the PROCHOT line. The Office Action asserts that performing throttling by using a G_STPCLK# signal teaches placing a signal on the PROCHOT line. This assertion does not withstand scrutiny of one skilled in the art. In one case, a signal describing a condition is provided. This signal may indirectly affect a clock. In another case a signal that directly controls a clock is provided. In one case an action may be taken in response to the signal while in the other case a pre-defined action will be taken. It is not obvious to assume that these different things teach each other. For this additional reason this claim is not obvious and is in condition for allowance.

Independent Claim 9

The Office Action refers to the rejection of claim 1. This claim has been amended to depend from claim 1. The Office Action incorrectly asserts that a "system" and a "computer configured with a system" are equivalent and perform the equivalent function. This is incorrect because it ignores the differences between the claims as written. Claim 1 refers to a system for simulating a state in a processor. This system may be incorporated into and/or interact with a number of devices, one of which may be a computer. Using the office action reasoning, an engine and a car would be equivalent, a heart and a human would be equivalent, and a thermostat and a furnace would be equivalent. Clearly this reasoning is flawed. For this additional reason this claim is not obvious and is in condition for allowance.

Independent Claim 10

The Office Action refers to the rejection of claim 1. This claim has been amended to depend from claim 1. The Office Action incorrectly asserts that a "system" and a "printer configured with a system" are equivalent systems and perform the equivalent function. This is incorrect because it ignores the differences between the claims as written. Claim 1 refers to a system for simulating a state in a processor. This system may be incorporated into

and/or interact with a number of devices, one of which may be a printer. For this additional reason this claim is not obvious and is in condition for allowance.

Independent claim 11

This claim recites a simulation logic to produce a simulated thermal management signal. The reference discloses only providing an actual thermal management signal. The claim also recites a combination logic that can selectively provide either an actual signal or a simulated signal. Once again the reference only discloses providing an actual thermal management signal.

The Office Action asserts that Bhatia discloses the combination logic in col. 2, line 29 when it describes a thermal management controller that may include one or more layers including software, firmware, and hardware. While the thermal management controller in Bhatia may have several layers, none of these layers are described as choosing between an actual signal and a simulated signal. Thus, this rejection is without basis and should be withdrawn.

Since this claim recites features not taught or suggested by the reference, it patentably distinguishes over the reference and is in condition for allowance. Accordingly, dependent claims 12-13 also patentably distinguish over the reference and are in condition for allowance.

Claim 12

This claim depends from claim 11, which has been shown to be not obvious. Thus this claim is similarly not obvious. Additionally, this claim includes elements like those described in claim 1 (e.g., data structure, logic to select and write bits). Thus the Office Action refers back to the rejection of claim 1. However, the reference still does not describe storing the address of the GPIO block and a set of bit patterns to write to the GPIO block. Thus, for this additional reason, this claim is not obvious and is in condition for allowance.

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Independent Claim 14

Claim 14 is a method claim. Yet it is rejected by simply referring back to the rejection of claim 1, which is a system claim. This is improper and the rejection should be lifted on these grounds alone. Additionally, this claim refers to "simulation data" that facilitate controlling the state of a thermal management signal and a thermal management register. While the reference describes storing the fact that an interrupt occurred in a single register bit (Col. 4, line 4-6), it does not describe storing simulation data. For this additional reason this claim is not obvious and is in condition for allowance.

Claims 15-21 depend from claim 14, which has been shown to be not obvious. Thus claims 15-21 are similarly not obvious.

Claim 16

This claim depends from claim 14, which has been shown to be not obvious and thus this claim is similarly not obvious. Additionally, this claim recites that establishing the data structure includes writing both a GPIO block address and a set of bit patterns to an ACPI table. Neither of these actions are disclosed in Bhatia. The Office Action asserts that Bhatia teaches this storing because "a clock duty cycle setting representing the current performance level Pn may be written by a thermal management module ... to control the register." The Office Action also asserts that Bhatia teaches the storing because it describes that "the thermal management may be performed in an ACPI environment." Neither of these citations are relevant to the claim because neither citation describes storing a GPIO block address in an ACPI table. Just because thermal management is performed in an ACPI environment does not mean that the management includes the additional claimed element of storing the GPIO address in the ACPI table. A citation where Bhatia describes storing anything other than conventional ACPI information in an ACPI table is invited. Since none can be found in Bhatia or in the other references this claim is not obvious for this additional reason.

Claim 18

This claim depends from claim 14, which has been shown to be not obvious and thus this claim is similarly not obvious. Additionally, this claim recites that the simulation data is

a set of bit patterns that can be written to the thermal management register or the GPIO block. The Office Action again relies on a portion of the questionable citation of Col. 4, line 5, which reads:

"Alternatively, the interrupt event may be stored as a memory or I/O mapped register bit that is polled by a software or firmware module."

This reliance is misplaced for at least two reasons. First, the office action has ended its citation at the point before the word "bit", which changes the entire meaning of the citation. Secondly, the citation refers to storing an interrupt data in a bit that can be polled by some other unit to see whether a thermal event has occurred. This is completely unrelated to writing a bit pattern to a GPIO block to simulate a state. In the citation, the fact of an event occurring is being stored. This is recording history. This is noting that a state exists. In the claim, an action is being taken, a bit pattern is being written to lead to a state coming into existence. Taking an action and recording the fact that an interrupt occurred are fundamentally different things. For this additional reason this claim is not obvious and is in condition for allowance.

Claim 19

This claim is rejected under the rationale for claim 7, and thus is traversed for the same reason, that the reference does not disclose the TM2 register. This claim depends from claim 14, which has been shown to be not obvious and thus this claim is similarly not obvious.

Claim 20

This claim is rejected under the rationale for claim 8, and thus is traversed for the same reason, that the reference does not disclose using the PROCHOT signal. This claim depends from claim 14, which has been shown to be not obvious and thus this claim is similarly not obvious.

Claim 21

This claim depends from claim 14, which has been shown to be not obvious and thus this claim is similarly not obvious. Additionally, this claim recites reporting a success or error condition based on reading a value from an ACPI status register. The office action asserts that Bhatia teaches "the detection of the processor status and also the comparison of the status value to a predetermined value." The office action then concludes that it "is obvious to one skilled in the art that a detection for an error (over heating) and the comparison of sampled temperature value to the predetermine [sic] temperature value are equivalent functions and serve the same function of confirming that the processor is not over-heating." This rationale is difficult to understand. Once understood, the rationale is seen to be completely unrelated to reporting a success or error condition.

A success or error condition as claimed refers to determining whether "writing the bit pattern to the GPIO block caused the desired processor performance state to be simulated—did the write take?" [0042]. This is a check to see that the desired action occurred. Bhatia simply describes reporting on a temperature produced in response to conventional ACPI thermal management. Bhatia describes reading sampled temperatures and comparing them to target temperatures and then taking an action based on the condition. Comparing an actual temperature to a desired temperature is not equivalent to a "success or error condition". It is a feedback loop that considers neither success nor failure, simply operating temperature. Operating temperatures are ongoing states, not determinative states that can be deemed to be successes or failures. For this additional reason this claim is not obvious and is in condition for allowance.

Independent Claim 22

This claim is rejected using the rationale of claim 1. However, claim 22 is directed towards a computer-readable medium and claim 1 is directed towards a system. It is incomplete to reject a computer-readable medium claim by simply referring to a system claim. The office action asserts that "claim 22 is broader in scope than claim 1 and as a result is rejected on the basis that claim 1 has been rejected." This statement does not withstand scrutiny because the scope of claim 1 and claim 22 are very different. The scope

of claim 1 encompasses a system. The scope of claim 22 encompasses a computer readable medium that stores processor executable instructions operable to perform a method. Thus, the rejection is improper and should be withdrawn. Additionally, claim 22 claims causing a processor state to be simulated in response to writing a bit pattern to a GPIO block. Bhatia does not describe writing anything to a GPIO block, let alone a bit pattern than can cause a processor to change its frequency and voltage. For this additional reason this claim is not obvious and is in condition for allowance.

Independent Claim 23

This claim is rejected using the rationale of claim 1. However, claim 23 is a means plus function claim and claim 1 is a system. It is incomplete to reject a means plus function claim by simply referring to a system claim. The office action asserts that "claim 23 is broader in scope than claim 1 and as a result is rejected on the basis that claim 1 has been rejected." The scopes are very different due to the different forms of the claims.

Independent Claim 24

This claim is directed towards a set of application programming interfaces (API) embodied on a computer-readable medium for execution by a computer component. The API includes interfaces for communicating bit pattern data, GPIO bock address data, and state data. An API is well understood to provide access to a system to programmers. Using an API, a programmer can write a program to access a system. An API encapsulates the functionality of a system while exposing the functionality. [0054]-[0055].

The office action asserts that Bhatia discloses an API because the processor throttling circuitry can be "implemented as a memory hub (including interfaces to the processor and system memory) and an input/output hub (including interfaces to the system bus and secondary bus)". Thus the office action appears to be asserting that an internal hardware interface between a processor and system memory provides access to the system to a programmer. This is clearly wrong. The office action relies on Bhatia col. 10, line 53, to support its assertion that an internal hardware interface provides programmer level access. The citation provides no such support.

Even if the citation did support the assertion, which it does not, what programmer access would be made available? Perhaps bit pattern data could be communicated and perhaps state data could be communicated, however none of the interfaces would allow GPIO block address data to be communicated. It is logical that no GPIO block address data could be communicated through any of the described interfaces because the address of the GPIO block is neither stored nor used anywhere in Bhatia or in the other references. Thus, it follows that there is no mechanism provided for communicating it to the system, particularly no mechanism like an API made available to a programmer. For this additional reason this claim is not obvious and is in condition for allowance.

Ascertaining Skill Level of One Skilled In The Art

The MPEP requires that the Office Action ascertain and describe the level of ordinary skill so that objectivity can be maintained. MPEP §2141.03 reads:

> The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry. *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718, 21 USPQ2d 1053, 1057 (Fed. Cir. 1991). The examiner must ascertain what would have been obvious to one of ordinary skill in the art at the time the invention was made, and not to the inventor, a judge, a layman, those skilled in remote arts, or to geniuses in the art at hand. *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 218 USPQ 865 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

Here the Office Action neither ascertains nor reports on the level of ordinary skill in the art. One skilled in the art would appreciate the difference between conventional ACPI and the simulations described and claimed. One skilled in the art would also appreciate the difference between performing an action in an ACPI environment, and changing that environment by reconfiguring an ACPI table. For this additional reason all the obviousness rejections are improper and should be removed, leaving all the claims in condition for allowance.

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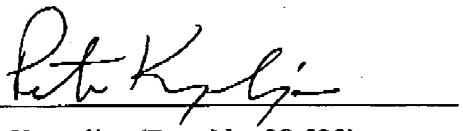
References Cited But Not Applied

The references cited but not applied have been considered and do not teach or suggest the recited features of the respective claims, individually or in combination with each other. Therefore, all claims are in condition for allowance.

Conclusion

For the reasons set forth above, **claims 1-24** patentably and unobviously distinguish over the references and are allowable. An early allowance of all claims is earnestly solicited.

Respectfully submitted,



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